

CLAIMS

I claim:

1. Leaf stripping machine specifically designed for selective leaf stripping of a vine, consisting of at least one leaf stripping head (1) equipped with a rotating drum comprising a lateral cylindrical opened wall (3), mechanisms (17-18) for driving this drum in rotation, an aspirating mechanism (4) making it possible to create an intake air flow going through the lateral cylindrical opened wall (3) of this drum, a mechanism (5) to channel this air flow through a varying portion of the lateral wall, and a cutting mechanism (14) installed near the portion of the lateral wall of the turning intake drum and oriented in parallel or approximately parallel to its axis of rotation (A-A), characterized in that the cylindrical opened wall (3) of the drum (2) is made of a flexible and deformable material that is permeable to the flow of air.

2. Leaf stripping machine according to claim 1, characterized in that the opened cylindrical wall (3) of the drum (2) is made of a metallic fabric comprised of meshes or interlaced metallic rings of the "coat of mail" type.

3. Leaf stripping machine according to one of the claims 1 or 2, characterized in that the tangential rotational speed of the drum (2) is at least equal to the speed of movement of the leaf stripping machine during work.

4. Leaf stripping machine according to any one of the claims 1 to 3, characterized in that the flexible and deformable wall (3) of the leaf stripping machine drum (2) is affixed to the elements of the circular upper end (10) and lower end (11), made of a deformable semi-rigid material.

5. Leaf stripping machine according to claim 4, characterized in that the drum (2) is suspended with a rotating ability by means of its upper circular end element (10).

6. Leaf stripping machine according to any one of the claims 1 to 5, characterized in that it consists of mechanisms for tensioning the flexible wall (3) in the vertical direction.

7. Leaf stripping machine according to claim 6, characterized in that the tension mechanisms are made of a spring (45) acting by compression and arranged around the lower axle of rotation (7) of the drum, this spring being set against the lower part (8) of the drum.

8. Leaf stripping machine according to any one of the claims 1 to 7, characterized in that a supplementary mechanism (16) for pulling the leaves is arranged in parallel to the axle of the drum (2), and recessed from the cutting bar (14) relative to the vegetation during work.

9. Leaf stripping machine according to claim 8, characterized in that the supplementary mechanism for pulling leaves is comprised of a rotating feeder (16) coupled to a rotating guide device (M2).

10. Leaf stripping machine according to one of the claims 8 or 9, characterized in that the supplementary mechanism (16) for pulling leaves is placed in contact with the lateral wall (3) of the drum (2) or very close to it.

11. Leaf stripping machine according to one of the claims 9 or 10, characterized in that the rotating feeder (16) comprises an axle (16a) along which flexible vertical blades (16b) are affixed.

12. Leaf stripping machine according to one of the claims 9 or 10, characterized in that the rotating feeder (16) is comprised of a brush.

13. Leaf stripping machine according to any one of the claims 9 to 12, characterized in that the tangential speed of the rotating feeder (16) is at least equal to the tangential speed of the drum (2) of the leaf stripping machine.

14. Leaf stripping machine according to one of the claims 1 or 8, characterized in that a comb (15) is arranged in parallel to and in front of the cutting bar (14), considering the direction of movement of the leaf stripping machine during work.

15. Leaf stripping machine according to one of the claims 1 to 14, characterized in that the cutting assembly (14-15; 14-15-16) is arranged behind a diametral plane (P-P) of the rotating drum (2) oriented perpendicularly to the movement axis (X-X) of the leaf stripping head (1) during work.

16. Leaf stripping machine according to any one of the claims 1 to 15, characterized in that the vertical portions (5c, 5d) that define the aspirating opening (9) of the mechanism for channeling the air flow (5) run against the internal surface of the lateral wall (3) of the drum (2) and in that these vertical portions (5c, 5d) are made of a flexible impermeable material.

17. Leaf stripping machine according to claim 16, characterized in that the mechanism (5) for channeling the flow of air is comprised of an impermeable cloth affixed over the rigid or semi-rigid frame.

18. Leaf stripping machine according to any one of the claims 1 to 17, characterized in that the vertical cutting bar (14) has an orientation according to which it forms an angle on the order of $\pm 45^\circ$ and, preferably, an angle on the order of 20° with a radius of the rotating intake drum passing by the active edge of the cutting bar.

19. Leaf stripping machine according to any one of the claims 1 to 18, characterized in that the mechanisms for driving the drum (2) in rotation comprise a vertical roller motor (17) arranged outside the drum (2) and at least one vertical counter-contact roller (18) placed inside the drum, the opened cylindrical wall (3) of the drum being pinched between the roller motor (17) and the counter-contact roller (18).

20. Leaf stripping machine according to any one of the claims 1 to 18, characterized in that the mechanisms for driving the drum (2) in rotation comprise a vertical roller motor (17) arranged outside the drum (2) and a pair of counter-contact rollers (18') having parallel axes placed inside the drum and mounted with an ability to pivot around a vertical axle in the manner of a bogie, the opened cylindrical wall (3) of the drum located pinched between the roller motor (17) and the pair of counter-contact rollers (18').

21. Leaf stripping machine according to one of the claims 19 or 20, characterized in that it consists of a common motorization (M2) that ensures:

- driving in rotation of the rotating drum (2);
- activation of the cutting bar (14), and
- driving in rotation the feeder (16).

22. Leaf stripping machine according to claim 21, characterized in that the common motorization consists of a hydraulic motor (M2) that drives:

- an eccentric having a connecting rod (22) that is coupled to the upper end of the blade (14a) of the cutting bar (14);
- a coupling shaft connecting the vertical shaft (20) of the eccentric (21) and the upper end of the axle (16a) of the feeder (16);
- and a vertical shaft (26) for driving the roller motor (17) arranged at a distance from the vertical coupling shaft (25) and connected to the latter by a transmission (27, 28, 29).

23. Leaf stripping machine according to one of the claims 19 or 20, characterized in that the counter-contact roller (18) or the pair of counter-contact rollers (18') is subjected to the action of elastic pushing mechanisms (37) that keep it permanently under pressure against the internal surface of the lateral wall (3) of the drum (2).

24. Leaf stripping machine according to any one of the claims 1 to 23, according to which the leaf stripping head or each leaf stripping head (1) is suspended on a carrier chassis (36) constructed and equipped with mechanisms (36a) that permit separating it from or bringing it together with the movement axis (Y-Y) of the leaf stripping machine, characterized in that the working position of the leaf stripping head or each of the leaf stripping heads relative to the axis (Y-Y) is regulated by a servo system acting as a function of the deformations supported by the flexible lateral wall (3) of the drum (2) during work.

25. Leaf stripping machine according to claim 24, characterized in that the servo system consists of mechanisms for detection (33, 34) of the deformations of the lateral wall (3) of the drum (2), which are housed inside the drum.

26. Leaf stripping machine according to claim 25, characterized in that the detection mechanisms consist of at least one sensor (33) housed inside the rotating drum (2), near the lateral flexible opened wall (3) of the drum.

27. Leaf stripping machine according to claim 26, characterized in that the detection mechanisms consist of several sensors (33) positioned inside the rotating drum (2) in a vertical alignment, at a distance from each other.

28. Leaf stripping machine according to one of the claims 26 or 27, characterized in that the sensor (33) or each sensor (33) is comprised of a sensor using the Hall effect coupled to a sensor (42A, 42B, 42C, 42D, ...) comprised of, for example, a contact shaft, preferably in a curved shape, in contact with the flexible wall (3) of the drum, this sensor supporting a magnet acting together with the sensor using the Hall effect mounted affixed, in order to detect and measure the deformations of the flexible wall.

29. Leaf stripping machine according to any one of the claims 22 to 28, characterized in that the servo system comprises an electric jack (41) equipped with an electronic board (43) for servo control using an algorithm that makes it possible to determine successive deformations of the lateral wall (3) of the leaf stripping drum (2) as a function of the analysis and treatment of signals by the sensors 33, the servo system acting on a deformable parallelogram (36a) on which the leaf stripping head (1), or each leaf stripping head (1), is suspended in a manner so as to obtain the optimum position of the leaf stripping drum relative to the vegetation during work.